Amendments to the Claims:

1. (Currently Amended) A method for detecting a difference in the sequence of two nucleic acid molecules comprising:

[a.] a) Contacting the two nucleic acids under conditions that allow the formation of a four-way complex and branch migration;

[b.] b) Contacting the four-way complex with a tracer molecule and a detection molecule under conditions in which the detection molecule is capable of binding the tracer molecule or the four-way complex; and

[c.] c) Determining binding of the tracer molecule to the detection molecule before and after exposure to the four-way complex, wherein competition of the four-way complex with the tracer molecule for binding to the detection molecule results in reduced binding of the tracer molecule to the detection molecule after the exposure to the four-way complex, which indicates the presence of a difference between the two nucleic acids.

2. (Currently Amended) A method for detecting a difference in the sequence of two nucleic acid molecules comprising:

[a.] a) Contacting the two nucleic acids under conditions that allow the formation of a four-way complex and branch migration;

[b.] b) Contacting the four-way complex with a tracer molecule and a detection molecule under conditions in which the detection molecule is capable of binding the tracer molecule or the four-way complex; and

[c.] c) Comparing binding of the tracer molecule to the detection molecule in step [b] b) with binding of the tracer molecule to the detection molecule in a test sample without the four-way complex, wherein reduced binding of the tracer molecule to the detection molecule in the presence of the four-way complex indicates a difference between the two nucleic acids.

3. (Currently Amended) The method of Claim 1 or 2, wherein steps ~~a and b~~ a) and b) are carried out simultaneously.

4. (Previously Presented) The method of Claim 1 or 2, wherein under the branch migration conditions the four-way complex is capable of resolution if the nucleic acids are identical in sequence.

5. (Previously Presented) The method of Claim 1 or 2, wherein under the branch migration conditions the four-way complex is not capable of resolution if the nucleic acids are not identical in sequence.

6. (Previously Presented) The method of Claim 1 or 2, wherein under the branch migration conditions if a difference between the two related nucleic acid sequences is present, branch migration in the four-way complex ceases and the four-way complex is stabilized, and if no difference between the two related nucleic acid sequences is present, branch migration in the four-way complex continues until complete strand exchange occurs and the four-way complex resolves into two duplex nucleic acids, thereby forming a stabilized four-way complex.

7. (Original) The method of Claim 1 or 2, wherein the difference is a mutation, an insertion, a deletion or a single base substitution.

8. (Original) The method of Claim 1 or 2, wherein one of the nucleic acids is DNA.

9. (Previously Presented) The method of Claim 1 or 2, wherein the four-way complex comprises a Holliday junction.

10. (Previously Presented) The method of Claim 1 or 2, wherein the detection molecule is capable of selectively binding a four-way nucleic acid complex.

11. (Previously Presented) The method of Claim 10, wherein the detection molecule is capable of selectively binding a Holliday junction.

12. (Previously Presented) The method of Claim 11 wherein the detection molecule is selected from the group consisting of RuvA, RuvC, RuvB, RusA, RuvG, Ccel, spCcel, Hjc and mutants or analogs thereof.

13. (Previously Presented) The method of Claim 11, wherein the detection molecule is thermostable.

14. (Previously Presented) The method of Claim 1 or 2, wherein the tracer molecule is a nucleic acid comprising a stable four-way complex.

15. (Previously Presented) The method of Claim 1 or 2, wherein the tracer molecule is a nucleic acid comprising an immobile four-way complex.

16. (Previously Presented) The method of Claim 14, whereinthe tracer molecule comprises one, two, three or four oligonucleotides.

17. (Previously Presented) The method of Claim 1 or 2, wherein the tracer molecule is capable of selectively binding the detection molecule.

18. (Previously Presented) The method of Claim 1 or 2, wherein the tracer molecule comprises a detectable label.

19. (Previously Presented) The method of Claim 18, wherein the detectable label is capable of generating a signal upon binding of said tracer molecule to said detection molecule.

20. (Previously Presented) The method of Claim 18, wherein the detectable label is a fluorescent label.

21. (Previously Presented) The method of Claim 20, wherein the fluorescent label is selected from the group consisting of fluorescein, rhodamine, cyanine dyes or BODIPY.

22-26. (Canceled)